

CLAIMS:

1. A touch sensitive matrix display comprising
a matrix of pixels,
an addressing circuit for writing data (DA) to the pixels during addressing periods (AP), the pixels having an optical state which, when not addressed, is maintained substantially longer than one of the addressing periods (AP),
a sense circuit for sensing during sense periods (SP) a touching position on the display, and

a controller for controlling the addressing circuit and the sense circuit to obtain the addressing periods (AP) and the sense periods (SP) being non-overlapping, wherein the sense periods (SP) do not interrupt the addressing periods (AP), and wherein substantially all pixels are addressed during each one of the addressing periods (AP).

2. A touch sensitive matrix display as claimed in claim 1, characterized in that the touch sensitive matrix display comprises select electrodes and data electrodes, the pixels being associated with intersections of the select electrodes and the data electrodes, and in that the sense circuit comprises a first plurality of measurement circuits coupled to the data electrodes for determining a first coordinate of the touching position, and a second plurality of measurement circuits coupled to the select electrodes for determining a second coordinate of the touching position.

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3. A touch sensitive matrix display as claimed in claim 1, characterized in that the controller is adapted for controlling the addressing circuit to be inoperative during a hold period (HP) occurring between subsequent addressing periods (AP) and lasting substantially longer than the addressing period (AP), and for controlling the sense circuit to be operative during at least part of the hold period (HP).

4. A touch sensitive matrix display as claimed in claim 3, characterized in that the controller is adapted for controlling the sense circuit to be operative intermittently during

the hold period (HP) to obtain a plurality of separate sense periods (SP) during the hold period (HP).

5. A touch sensitive matrix display as claimed in claim 3, characterized in that the controller is adapted for controlling the sense circuit to be operative continuously during the hold period (HP) after a first touching event has been sensed.

6. A touch sensitive matrix display as claimed in claim 1, characterized in that the touch sensitive matrix comprises light or pressure sensitive elements (R1) in or associated 10 with the pixels.

7. A touch sensitive matrix display as claimed in claim 1, characterized in that the sensing circuit comprises an impedance detector for detecting a change of an impedance of the pixels.

15 8. A touch sensitive matrix display as claimed in claim 1, characterized in that said matrix display is an electrophoretic display.

20 9. A display apparatus comprising
the touch sensitive matrix display as claimed in claim 1, and
a signal processor for supplying input data (VI) to the addressing circuit in dependence on the touch position sensed to generate at least part of an image to be displayed on the touch sensitive matrix display.

25 10. A method of touch sensing with a touch sensitive matrix display comprising a matrix of pixels, the method comprising
writing data (DA) to the pixels during addressing periods (AP), the pixels having an optical state which, when not addressed, is maintained substantially longer than one of the addressing periods (AP),

30 sensing during sense periods (SP) a touching position on the display, and controlling the addressing and the sensing to obtain the addressing periods (AP) and the sense periods (SP) being non-overlapping, wherein the sense periods (SP) do not interrupt the addressing periods (AP), and wherein substantially all pixels are addressed during each one of the addressing periods (AP).